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DATE: 10 November 1958

TO : Chief, Geography Division, D/CG
THRU : Chief, Geographic Research, CH/G
THRU : Chief, Economic Research, CH/E
THRU : Chief, Materials Division, D/M
FROM : Chief, Food and Agriculture Branch, M/AG

SUBJECT: Request for D/CG Support Project.

1. The development of the Chinese Communist economy is largely dependent upon progress in Agriculture. The Chinese Communist "leap forward" program contemplates extremely large increases in grain production in the next few years and emphasizes measures to raise grain yields. An analysis of the climatic limitations on grain production in Communist China and the identification of climatically analogous areas in Free World countries would be of great assistance to M/AG in developing estimates of the grain yield potential in Communist China.

2. Preliminary talks by M/AG personnel with Mr. [REDACTED] of 25X1A9a D/CG have suggested that D/CG has both the capability and interest necessary to undertake such a study. It is requested, therefore, that D/CG prepare an analysis of the climatic factors affecting the production of grain in Communist China.

3. It is not possible to develop detailed terms of reference at this stage since the analysis will undoubtedly require compromises between the ideal and the possible measurable variables. At this stage neither the ideal variables, nor the possible measurable variables (in terms of the climatic data available for China) have been identified. The following terms of reference should therefore be considered to be preliminary, and it is expected that they will be modified by consultation between M/AG and D/CG.

4. Terms of reference. The project could be developed in two parts:

a. The first part to consist of a study of the climatic limitations to the growth of grain (especially rice and wheat) in Communist China by geographic location.

This section will require an identification of the most important measurable climatic factors limiting grain yields, and the preparation of a series of maps showing the geographic location of these climatic variables in China.

The limiting variables for grain yields can be identified by a study of the ecology of grains, and will include such factors as the frost-free period, rainfall, and perhaps an appropriate sum of daily temperatures. Since multiple cropping is important in China, the limiting variables for multiple cropping, as well as single crops, should be identified.

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It is believed that when the series of maps showing climatic limiting factors are overlaid, the grain yield potential of various areas will be clearer. When combined with information about soils, topography, and present area (which factors are not asked for in this study) this study will provide a basis for estimating the Chinese grain production potential.

Estimates of potential yields will necessarily involve a series of assumptions as to fertilizer, technology, etc. These assumptions should be specified.

b. The second part of the project should provide an identification of Free World areas, with advanced grain technology and high grain yields, which have climates similar to the important Chinese Communist grain areas.

The significant climatic factors will have been identified for part a. above. By a comparison of grain yields in Free World areas climatically analogous to specified areas in China, the potential effect of different technology (more chemical fertilizers, improved seed, more machinery) on grain yields in China can be analyzed.

5. A study similar in concept to part (a) (paragraph 3), analyzing climatic factors limiting Soviet corn production, was recently completed by D/CG. A study of Free World areas climatically analogous to Soviet grain areas, similar in concept to part (b) (paragraph 3), was made as part of the ORR external research project [REDACTED].

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ORR/M/AG: [REDACTED], fef/3552

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